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FACTORS INFLUENCING BREASTFEEDING IN A HOSPITAL SETTING

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Abstract

Breastfeeding is promoted across the globe as the optimum method of infant feeding (World Health Organization, WHO, 2003). Though there is a plethora of published benefits of breastfeeding for baby and mother, breastfeeding rates are below the national goal of 75% for Healthy People 2010 during early postpartum and considerably lower at six months and at one year (Li et al., 2005; HHS, 2000). Arkansas is significantly below the national average and goals, with only 60% of mothers ever breastfeeding versus 74% nationally (Centers for Disease Control and Prevention, CDC, 2008). To meet these goals nationally and on a state level, it is important to examine the factors associated with a mother's choice of breastfeeding. Part I of this study examined the relationship between breastfeeding at discharge and the mother's initial feeding preference, method of delivery, time of birth, birth-to-breast time, and any formula supplementation. It also identified which factor had the strongest relationship with rates of breastfeeding upon hospital departure. Part II of this study examined hospital nurses' attitudes, knowledge, and confidence about breastfeeding instruction as related to their self-reported assistance with and promotion of breastfeeding in the past year. Results: Exclusive breastfeeding at discharge was related to type and time of delivery, birth-to-breast time, and use of formula supplementation. Knowledge and attitude scores did not yield significant correlations with the assistance and promotion of breastfeeding, though a weak positive correlation was noted between confidence in breastfeeding promotion and the nurses' assistance and promotion of breastfeeding.

Introduction

Breastfeeding is promoted across the globe as the optimum method of infant feeding (WHO, 2003). Though there is a plethora of published benefits of breastfeeding for baby and mother, breastfeeding rates are below the national goal of 75% for *Healthy People 2010* during early postpartum and considerably lower at six months and at one year (Li et al., 2005; HHS, 2000). Arkansas is significantly below the national average and goals, with only 60% of mothers ever breastfeeding, versus the national average of 74%, and only 22.5% of Arkansas mothers exclusively breastfeeding three months after the infant's birth (CDC, 2008). Arkansas hospitals and birth centers scored only 53 out of 100 (below the national 66) for facility supportive breastfeeding practices (DiGirolamo et al., 2008). With the *Healthy People 2010* initiative, the United States Department of Health and Human Services hopes to see the national breastfeeding goals met by 2010 (Li et al., 2005; HHS, 2000). Some of the lower percentages in breastfeeding rates are caused by lower numbers of low-income and minority mothers choosing not to breastfeed (Li et al., 2005; HHS, 2000; Wolf, 2003). Other factors within the hospital setting could potentially be the cause of the gap in rates.

Though the practice of breastfeeding is dateless, its ben-

efits have just been verified and highlighted in the past century. Throughout the twentieth century, however, breastfeeding declined as births moved out of homes and into hospitals and more physicians encouraged newly designed formulas that were thought to have more nutrients for the baby (Gibson, 2005; Wolf, 2003). In the latter twentieth century, emerging research supported the benefits of breastfeeding. This research and the resurgence of physician encouragement began to counteract declining breastfeeding rates postpartum, raising them from 24% in 1971 to just over 70% in (Gibson, 2005; Wolf, 2003).

Infant Benefits

Current research demonstrates that breastfeeding can dramatically decrease infant mortality rates (American Academy of Pediatrics, 2005; Barrett, 2004). Breastfeeding is also known to decrease gastrointestinal problems, including diarrhea, often linked to formula consumption (AAP, 2005; Gibson, 2005). Breastfeeding reduces the rate of infections in newborns and children, specifically ear, respiratory, and urinary tract infections (AAP, 2005; Barrett, 2004; Galson, 2008; Greer et al., 2008). It can also reduce atopic diseases such as asthma, eczema, allergic rhinitis, and food allergies (AAP, 2005; Greer et al., 2008). Breastfeeding is associated with dramatic decreases in pediatric obesity (AAP, 2005; Armstrong et al., 2002; Grummer-Strawn et al., 2004) and with reduced risk for the development of type 1 diabetes mellitus (AAP, 2005; Sadauskait-Kuehne et al., 2004). Breastfed infants also show an increase in neurological development and have a decreased risk of Sudden Infant Death Syndrome (SIDS) (AAP, 2005; Barrett, 2004). Acting as a natural analgesic, breastfeeding can assist in comfort measures for infants during painful medical procedures (AAP, 2005; Gray et al., 2002).

Maternal Benefits

Not only does breastfeeding have an overwhelming benefit for the baby, but mothers reap benefits as well. The skin-to-skin contact associated with breastfeeding develops and enhances a maternal-child bond (AAP, 2005; Britton et al., 2006; Dabrowski, 2007). Furthermore, breastfeeding mothers are less likely to suffer from postpartum depression (Akman et al., 2008). Additionally, breastfeeding increases the rate of return of the mother's body to a pre-pregnancy state (AAP, 2005; Dewey et al., 1993; HHS, 2000). Breastfeeding mothers also show a significant decrease in the risk for breast and ovarian cancers (AAP, 2005; Chilvers, 1993; Galson, 2008; Gwinn, 1990; HHS, 2000). Further, a decrease in the risk of developing osteoporosis and hip fractures after menopause has also been linked to mothers who breastfeed (AAP, 2005; Cumming et al., 1993; Fox et al., 1993; HHS, 2000). Surprisingly, breastfeeding benefits women in the workplace by decreasing time off for sick children and lowering costs of health care to the employer (Cohen et al., 1995; Galson, 2008). The mother and the family greatly benefit from the decreased or eliminated cost of formula and a decrease

in health care costs in the child's future (AAP, 2005; Ball, 1999).

Factors Influencing Breastfeeding Rates

Infants benefit from breastfeeding long term. The AAP recommends exclusive breastfeeding for six months and support for breastfeeding through the first year and beyond as desired (AAP, 2005). However, a number of factors influence a mother's decision to continue breastfeeding over time. Attitudes and social support of the mother affect exclusive breastfeeding at 6 months (Bai et al., 2010). Mode of delivery could affect exclusive breastfeeding; research suggests that mothers need even greater support in breastfeeding following a caesarean birth (Baxter, 2006). Time of birth could also affect in-hospital breastfeeding as formula supplementation is most likely to occur between 7 PM and 9AM (Gagnon et al., 2005). The World Health Organization (1998) reported that getting an infant to the breast within 30 minutes of a normal vaginal delivery correlated with exclusive breastfeeding at 2-3 months of age. A study of Japanese women showed a strong correlation between exclusive breastfeeding at four months and a maximum birth-to-breast time of 120 minutes (Nakao et al., 2008). Formula supplementation in the hospital has been shown to decrease the length of breastfeeding (Sheehan, 2006; Tender et al. 2009). A lower rate of exclusive breastfeeding during the hospitalized postpartum period could relate to the substandard rate of long-term breastfeeding (Tender et al., 2009).

Mothers learn about breastfeeding techniques and its benefits in a variety of ways. Women associate with friends or family members who have breastfed infants in the past and can view the practice positively or negatively depending on the observed experience of others (Williams et al., 1999). Prenatal and parenting classes may also include breastfeeding education. A great deal of education on breastfeeding occurs in the hospital setting and is conducted by the nursing staff. In one study, 37% of mothers said in-hospital support was the most influential factor in choosing breastfeeding (Williams et al., 1999). Pender's health promotion model also identifies interpersonal influences, including health providers, as a stimulus producing a health promoting behavior (Pender et al., 2002). Breastfeeding is classified as a health promoting behavior because of its positive impact on the health of mother and baby (Schlickau et al., 2005). Nurses' attitudes towards breastfeeding, their knowledge base, and their affirmative reinforcement significantly influence the success of breastfeeding for mothers (Ellis et al., 1983; Williams et al., 1999). Unfortunately, the endorsement of formula use by hospital staff has had a stronger impact than hospital staff support and promotion of breastfeeding (Williams et al., 1999). Further, mothers who choose to use formula attribute their choice to in-hospital staff more so than do mothers who choose to breastfeed (Williams et al., 1999).

Aims of the Study

Part I of this study examined the relationships between rate of exclusive breastfeeding at discharge and the following variables: initial mother preference, method of delivery, time of birth, birth-to-breast time, and any formula supplementation. The goal was to determine which in-hospital factor, if any, had the strongest correlation with exclusive breastfeeding rates at discharge. Part II of this study examined the relationship between assistance with and promotion of breastfeeding by the nurses in the hospital setting and the variables of years in practice, level of education, personal

experience, attitudes, knowledge levels, and confidence levels.

Part I

Method

Design. A retrospective chart review was conducted to gather specific data for statistical analysis. Each chart was assigned a random case number and did not contain the name of the patient or the medical record number. Variables of interest were initial mother feeding preference, method of delivery, time of birth, birth-to-breast time, any formula supplementation, and preferential feeding choice at discharge. The following variable definitions were used. *Birth-to-breast time* is the amount of time between the documented time of birth and the documented initial breastfeeding of the baby calculated in minutes. *Supplementation* is the use of infant formula exclusively or in combination with breast milk to feed the infant, measured by the act of supplementation and the number of times formula was fed to the newborn at any point during the hospital stay. *Rates at discharge* are the number of mothers who are exclusively breastfeeding at the time they are released from the hospital with their infant, measured by exclusive breastfeeding charted during the last 12 hours of their hospital admission and as indicated on the discharge summary. *Breastfeeding with supplementation* is the use of breastfeeding and formula within the last 12 hours of hospital admission.

Sample. The charts sampled in this study were those of mothers delivering term infants in an urban health care facility in Northwest Arkansas. Term infants are those who are born after 37 weeks gestation or who are not admitted to the NICU or termed 'preemie'. Birth methods included caesarean section and vaginal births. Mothers of babies admitted to the neonatal intensive care unit and mothers with illnesses or contraindications to breastfeeding were excluded from this study. Ten percent of female patient charts falling within the aforementioned criteria from January 2008-June 2008 were viewed and analyzed. The sample size was 152.

Data and Analysis. Descriptive statistics were calculated for all variables. The format for creating each variable is provided in Table 1.

Table 1. Elements for Chart Review

Breastfeeding at discharge	Breastfeeding preference upon admission	Method of Delivery	Time of Birth	Birth-to-breast time	Formula Supplementation
<input type="checkbox"/> Yes	<input type="checkbox"/> Prefer breastfeeding <input type="checkbox"/> Prefer formula feeding <input type="checkbox"/> No preference	<input type="checkbox"/> Caesarean Section <input type="checkbox"/> Vaginal delivery	Note delivery time	Calculate minutes from time of birth to time of first breastfeeding	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> If yes, how many times?
<input type="checkbox"/> No	<input type="checkbox"/> Prefer breastfeeding <input type="checkbox"/> Prefer formula feeding <input type="checkbox"/> No preference	<input type="checkbox"/> Caesarean Section <input type="checkbox"/> Vaginal delivery	Note delivery time	Calculate minutes from time of birth to time of first breastfeeding or note if never breastfed	<input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> If yes, how many times?
Frequency and percentages calculated	Frequency and percentages calculated	Frequency and percentages calculated	Mean and standard deviation calculated for both groups	Mean and standard deviation calculated for both groups	Frequency and percentages calculated. Means and standard deviations for the number of supplementations also calculated

Results

In the 152 charts reviewed, 101 mothers indicated exclusive breastfeeding as their initial preference for feeding method on the delivery report. Twenty-three mothers preferred bottle feeding, and 38 mothers preferred combined breastfeeding and bottle use as the source of nutrition for their infant. Only 55% of those with an

exclusive breastfeeding preference were exclusively breastfeeding at discharge. Ninety-five percent of those desiring bottle feedings initially were discharged bottle feeding. Eighty-nine percent of those who preferred breast and bottle feedings initially were discharged from the hospital using breast and bottle feedings. Of the 66% mothers who initially preferred breastfeeding alone, 33% left the hospital breastfeeding with supplementation. See Figure 1.

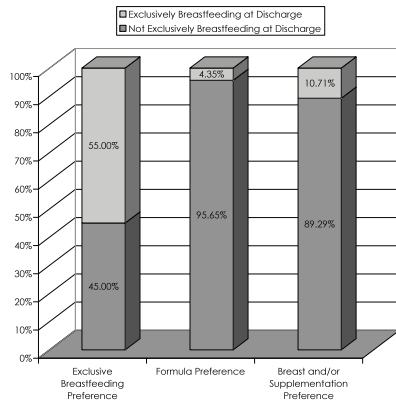


Figure 1. Exclusive breastfeeding at discharge based on mother's initial preference

Seventy-six babies were delivered by caesarean section, and 76 babies were delivered vaginally. There were no significant differences in initial feeding preference based on type of delivery. However the method of delivery influenced the rate of exclusive breastfeeding at discharge. Forty-one mothers (53.95%) with vaginal deliveries left the hospital exclusively breastfeeding, while only 17 mothers (22.37%) with caesarean deliveries left the hospital exclusively breastfeeding. See Figure 2.

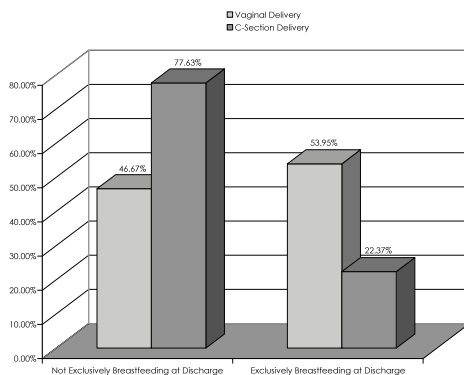


Figure 2. Exclusive breastfeeding at discharge based on method of delivery

One hundred seventeen births were reported during the day shift, and 34 births occurred during the night shift. Forty-three percent of births during the day shift were discharged exclusively breastfeeding, while only 24% of births occurring during the night shift left the hospital exclusively breastfeeding.

The average birth-to-breast time was 345 minutes, with a median of 203 minutes. Less than 25% had a birth-to-breast time of under one hour. Less than 8% of infants who were breastfed had a birth-to-breast time that met the national standard of 30 minutes. Birth-to-breast times were significantly shorter for women who exclusively breastfed at discharge and those who were not exclusively breastfeeding at discharge ($t = -6.18916$, $df = 69$, $p < .0001$). Prolonged birth-to-breast times resulted in a decreased likelihood of exclusive breastfeeding at discharge. See Figure 3. The method of delivery correlated with the birth-to-breast time. The average

birth-to-breast time after a vaginal birth was 4 hours and 11 minutes, while that after a caesarean section was 7 hours and 29 minutes.

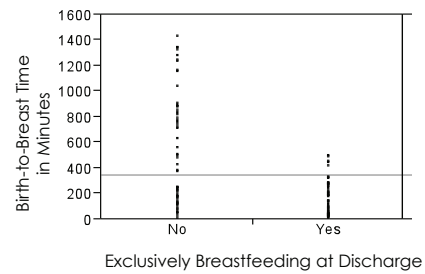


Figure 3. Exclusive breastfeeding at discharge based on birth-to-breast times

Out of the 39% of the mothers who left the hospital exclusively breastfeeding, 17% received formula supplementation in the hospital. Only 10% of infants who received formula supplementation left the hospital exclusively breastfeeding. Formula supplementation was given to 67% of those in the study, although only 34% initially preferred the use of a bottle or breastfeeding with supplementation. Formula supplementation showed the greatest correlation with the rates of exclusive breastfeeding at discharge (Kendall's $T = -0.7192$, $p < .0001$).

Part II

Method

Design. Part II of this study involved the distribution and review of survey data. The survey was originally developed by Freed et al. in 1996 to examine the methods and outcomes of breastfeeding instruction for nursing students. In 2000, Register et al. revised the survey to examine the breastfeeding knowledge and attitudes of office nurses. The survey for this study was then revised for hospital nurse respondents. The revised survey contained 16 multi-part questions, with 37 data points collected. Questions were multiple choice or used a 5-point Likert-type scale with 1 being the most negative response (not confident, strongly disagree, or very negative) and 5 the most positive (very confident, strongly agree, or very positive). The survey was distributed to each nurse attending a monthly staff meeting with instructions to return the survey (if willing to complete) to the associate director's office. The survey instrument did not request the name of the respondent. Data collected from the survey included level of education; number of years in practice; breastfeeding education received; breastfeeding practices and management in the hospital to assist, teach and refer; personal experience; attitudes towards breastfeeding and the nurse's role in assistance; confidence levels in assisting with and teaching about breastfeeding; knowledge of breastfeeding; and nurse assistance and promotion of breastfeeding.

Sample. Subjects were Registered Nurses working in the labor and delivery, nursery, and post-partum areas in an urban health care facility in Northwest Arkansas. A convenience sample was used.

Analysis. Attitude, knowledge, and confidence questions using the 5-point Likert-type scale yielded a subscale score for each topic. Descriptive statistics were calculated for the subscales and variables. The relationships between the frequency of nurse assistance and promotion of breastfeeding in the past year and the following variables were examined: years in practice, level of education, personal experience, attitudes, knowledge, and confidence levels of the nurse.

Results

Twenty-five out of 27 distributed surveys were filled out and anonymously submitted (a 93% response rate). The average length of practice was 10.2 years, with a median practice time of 4 years. Years in practice was not significantly related to the assistance and promotion of breastfeeding. The sample consisted of 4 diploma registered nurses, 8 associate degree registered nurses, and 13 baccalaureate degree registered nurses, with no participants having a master's degree. Eighty-eight percent reported that some of their breastfeeding education was received on the job, and all subjects reported that some breastfeeding education had been received. Only 16% received breastfeeding education through continuing education, the lowest reported source of education for the nurses. The relationship between level of nursing education and nurse assistance and the promotion of breastfeeding was not significant.

Sixteen nurses (64%) reported having breastfed their own infants. The average length of personal breastfeeding reported was 12.6 months +/- 16.8, with a median of 9 months. The majority of those with personal breastfeeding experience reported it as a positive to very positive experience, with a mean of 4.5 out of 5. Correlation analysis of the relationship between personal experience and nurse assistance and the promotion of breastfeeding did not yield a statistically significant relationship. Attitude scores were evaluated based on the nurses' perceptions of their role in breastfeeding and the importance of exclusive breastfeeding. The maximum attitude score possible was 30 based on a 5-point Likert scale. The mean attitude level of the nurses was 21, with a median of 21. Nurses strongly to somewhat disagreed that it was their role to follow up with breastfeeding mothers, with a mean score of 2.44 out of 5 on the Likert scale. Nurses were indifferent to the statement that exclusive breastfeeding is the most beneficial form of nutrition for the infant in the first four months of life, with a mean score of 3.68. Nurses also strongly to somewhat disagreed that supplementation was a cause of breastfeeding failure, with the mean answer being 2.56. See Figure 4.

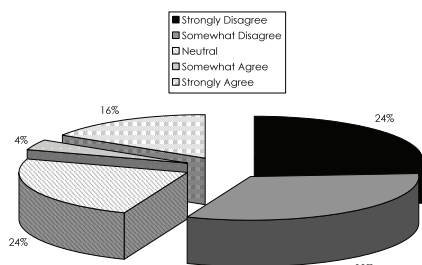


Figure 4. Self-reported opinions of 25 RNs citing formula supplementation in the first two weeks of life as a cause for breastfeeding failure

Knowledge scores were based on levels of agreement with true statements regarding breastfeeding, including health benefits to the infant and proper discharge instructions for the breastfeeding mother. The maximum knowledge score was 28; the mean in this study was 22.8 +/- 3.0, with a median of 22.5. The majority of the sample agreed that breastfed infants benefit from fewer ear infections and cases of gastroenteritis, increased immune function, and adequate weight gain without formula supplementation. Nurses provided correct discharge instructions that babies should return to birth weight in two weeks and that breasts will feel fuller prior to feeding. Neither the attitude nor the knowledge scores were significantly correlated with nursing assistance and promotion of breastfeeding.

Confidence scores were based on self-reported abilities to assist with breastfeeding and help the mother with common breastfeeding concerns. The maximum confidence score was 51. The mean confidence reported in this study was 37, with a median of 39. Nurses were most confident in their ability to work with breastfeeding mothers concerning jaundice, with a mean score of 4.04 out of 5. Nurses reported being the least confident in assisting a mother with latch difficulties and educating a mother on her medication use while breastfeeding, with a mean of 3.32 out of 5 for both questions. The confidence of the nurse had a weak positive correlation ($r = 0.28$, $p = 0.17$) with the assistance and promotion of breastfeeding, but it was not statistically significant.

Nurses cited their own efforts to assist or to refer to a lactation consultant as the most common actions taken when a patient required breastfeeding assistance. Sixty-eight percent of the sample reported observing a patient breastfeeding over 50 times in the past year. Assistance and promotion scores were based on the self-reported frequency in the past year of counseling on feeding choices, teaching of breastfeeding techniques, providing breast pump instruction, counseling a mother with lactation problems, and encouraging breastfeeding over formula use. The maximum score was 15, with this sample averaging a score of 10 and a median score at 11. The majority of the sample (54%) reported providing breast pump instruction only 1 to 10 times throughout the past year, while the majority had counseled moms on feeding choices and taught breastfeeding techniques over 50 times in the past year. See Figure 5.

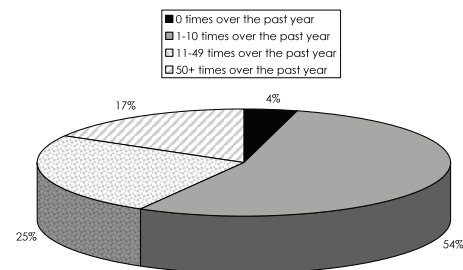


Figure 5. Self-reported frequency of breast pump instruction over the past year

Thirty-six percent had encouraged breastfeeding over the use of formula 50+ times in the past year. No factor was significantly correlated with nurse assistance and promotion of breastfeeding. See Figure 6.

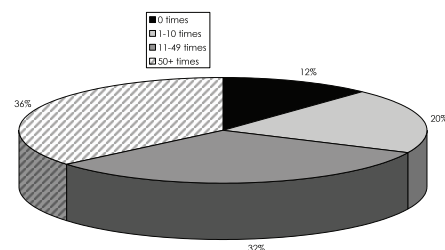


Figure 6. Self-reported frequency of encouraging breastfeeding over formula use over the past year

Discussion

Part I of this study used a chart review to examine factors influencing exclusive breastfeeding on discharge. Several factors were identified as related to exclusive breastfeeding. Cesarean delivery, births on night shift, longer birth-to-breast times, and formula

supplementation resulted in decreased rates of exclusive breastfeeding at discharge. Mother's initial preference was not significantly related to breastfeeding at the time of discharge. The majority of mothers with initial preferences for only bottle feedings or a breast/bottle combination were discharged using their preferred practice. Only 10% of those preferring both and 4% of those preferring formula were discharged exclusively breastfeeding. However, 45% of those who preferred exclusive breastfeeding were not discharged doing so.

With the *Healthy People 2010* goal of 75% breastfeeding in the postpartum period, mothers were closer to reaching the goal at hospital admission, with 66% of mothers wanting to exclusively breastfeed, than at discharge, when only 39% of the sampled population was exclusively breastfeeding. The decrease in the mothers exclusively breastfeeding at discharge is presumed to be related to factors in the hospital setting, not to prenatal care or parenting classes. One such factor might be nursing encouragement. In Part II of this study, only 36% of the nurses encouraged breastfeeding over formula more than 50 times in the past year, which is minimally once a week. Though the majority strongly agreed that breastfeeding support was an important use of their time, nurses responded neutrally to the importance of exclusive breastfeeding for the nutrition of the infant, despite its label as the optimal feeding choice for infants (WHO, 2003). The low percentage of breastfeeding promotion and an apparently apathetic attitude towards the importance of breastfeeding could explain some of the large differences in exclusive breastfeeding at discharge for those mothers who initially preferred exclusive breastfeeding versus those that accepted supplementation.

Though the initial preferences did not significantly vary between mothers having vaginal or caesarean deliveries, exclusive breastfeeding at discharge decreased with a caesarean delivery. The care a mother receives after a c-section can influence feeding outcomes (McFadden et al., 2009). Exclusive breastfeeding rates also dropped for births on the night shift. Birth-to-breast time was also an average of 3 hours and 18 minutes longer after caesarean deliveries. This is consistent with studies indicating that caesarean birth is a barrier to the early initiation of breastfeeding (Rowe-Murray et al., 2003). Research suggests that the birth-to-breast time should be thirty minutes after a normal vaginal delivery for successful breastfeeding in the future (WHO, 1998). Neither delivery method in this study yielded an acceptable birth-to-breast time. Both delivery types, time of shift during birth, and birth-to-breast time significantly influenced exclusive breastfeeding at discharge.

Finally, formula supplementation significantly decreased exclusive breastfeeding at discharge. The majority of surveyed nurses did not agree that supplementation caused breastfeeding failure, though research suggests formula supplementation in the hospital impedes long-term breastfeeding success (Tender et al., 2009; Glagnon, 2005). The lowest rate of exclusive breastfeeding at discharge was for infants who had received formula supplementation.

The nurses in Part II of the study had positive scores for attitudes, knowledge, confidence, and assistance/promotion of breastfeeding; however, they scored lowest in attitudes for all categories, which is an important finding since nurse attitudes significantly influence breastfeeding success (Ellis et al., 1983; Williams et al., 1999). Knowledge and attitude scores did not yield significant

correlations with the assistance and promotion of breastfeeding. A weak positive correlation was noted between confidence in breastfeeding promotion and the nurses' assistance and promotion of breastfeeding, though it was not statistically significant. Overall, only two-thirds of the nurses assisted and promoted breastfeeding on a near weekly basis. The survey revealed that most nurses do not regularly provide instruction on breast pumps, counsel a mom with lactation problems, or encourage breastfeeding over formula. The majority do not believe it is their role to follow up or that supplementation causes breastfeeding failure.

The results of Part I are generalizable to the target population at this particular hospital. Generalizability could be increased with random samplings from other area hospitals to explain a target population of the region. The results of Part II are likely not generalizable to the target population outside of the surveyed group due to the small sample size and method of convenience sampling versus random sampling.

Nursing Implications

The results of the study have implications for nursing education and practice in order to improve breastfeeding in hospital settings to ensure that infants are receiving the best nutrition. Nurses reported low frequencies of breast pump instructions and a lack of confidence in educating mothers about medication compatibility and breastfeeding. Because pumping breast milk enables nursing mothers to return to work while still providing breast milk to the infant, nurses should educate themselves on the availability and types of breast pumps available to buy, rent, or use on their unit. Encouraging a new mother to use a breast pump in the hospital setting if she must return to work could improve her success in breastfeeding the infant long term. By gaining confidence in educating mothers about the use of medication while breastfeeding, nurses may increase how often they assist with and promote breastfeeding. LactMed is a resource that nurses can utilize to look up drugs and their compatibility with breastfeeding (US NLM, 2009).

Nurses should also gain awareness about the new *Healthy People 2020* goals for breastfeeding. By increasing the awareness of factors that can decrease breastfeeding success, such as caesarean deliveries, births on the night shift, delayed birth-to-breast times, and formula supplementation, nurses can prepare themselves to implement more interventions to assist and promote breastfeeding when these factors are present. Because in-hospital staff members influence the nutrition decisions parents make for their infants, nurses play a direct role in increasing breastfeeding rates. In addition to meeting WHO standards for breastfeeding, nurses should be aware of evidence-based practices concerning breastfeeding to provide optimal patient care. Research demonstrates that formula supplementation in the hospital can lead to long-term breastfeeding failure; therefore, measures should be taken to ensure that nutrition is properly maintained and that the mother is educated and assisted with breastfeeding, particularly if these are her wishes (Tender et al., 2009).

In the present study, the majority of mothers with initial preferences for formula feeding or breast and supplementation left the hospital practicing their initial preference, but nearly half of mothers initially preferring exclusive breastfeeding left the hospital doing otherwise. These data suggest that the hospital staff may not have been cognizant of the mother's wishes or were not

determined to fulfill her preferences during her hospital stay. The American Nurses Association Code of Ethics (2005) states that the “nurse’s primary commitment is to the patient.” Measures should be taken to advocate for the health of the mother and the infant and fulfill the feeding preferences of mothers.. To improve the health of patients in the maternal-newborn setting and reach future *Healthy People 2020* goals, implementing practices and attitudes that promote exclusive breastfeeding is essential.

Limitations

Limitations to Part I of the study include variations in charting methods used by nurses to document a mother’s initial preference and feeding times. Exclusive breastfeeding at discharge was based on the electronic documentation of feeding methods during the final 12 hours of the hospital stay. Inaccuracies could occur if not all of the feedings were documented in that time period.

Limitations to Part II of the study include the small size of the survey sample. Scores on the survey were self-reported and may not reflect the actual practices of the nurses. The shift of the nurse could have been reported and could have potentially yielded a relationship with assistance and promotion of breastfeeding.

Future Research

Subsequent studies could explore more fully the relationship between time of birth and breastfeeding at discharge. A larger study of nurses’ assistance and promotion of breastfeeding may yield statistically significant relations with attitude, knowledge, and confidence in hospital nurses. A qualitative study of the nurses’ reflections on practice may help uncover additional factors that influence breastfeeding rates.

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- Mentor Comments:** Faculty mentor Kathleen Barta describes the persistence of Mary Smith as she pursued her research goal, helping one area facility along the way.
- Mary approached me during her junior year with an ambitious idea for her honor's project very well conceptualized. She clearly identified the relevant variables from previously published work in the area of infant nutrition. Mary took my suggestions for locating a tool to measure her variables of interest. She received an Arkansas Student Undergraduate Research Fellowship (SURF) grant in the fall of 2008 to address her first aim of understanding factors affecting breastfeeding through a retrospective chart review. Negotiating resistance in the initial clinical setting where conducting research is not yet common practice was an important learning experience. She eventually switched sites and found staff willing to assist with her study. She conducted all of the chart reviews. Her eagerness to more fully understand factors affecting breastfeeding from the point of view of the nursing staff led her to successfully submit for an Honor's College grant to address her second research aim through a survey of nurses in maternal-child practice. Mary arranged permission to use a previously published survey instrument (Register, Lowdermilk, Hammond, & Tully, 2000). She worked with the hospital's clinical director to distribute the survey to staff nurses. The U.S. Department of Health and Human Services' Healthy People 2020 initiative has goals to "increase quality and years of healthy life and eliminate health disparities." The specific breastfeeding objective is to increase the proportion of mothers who breastfeed their babies. The value of Mary's study was to uncover in a particular setting some of the factors that influence current rates. She shared the results of her research with staff in the setting in an effort to remove barriers to breastfeeding and increase rates of breastfeeding of the women served by the setting. The clinical director wrote to say that Mary "presented her research...[and] did a wonderful job. We now have lots of valuable information that will help us improve our nursing practices related to breastfeeding. This was a great experience." Mary also presented her research April 12, 2010 in a poster presentation at the 19th Annual Nursing Excellence in Leadership and Evidence-Based Practice conference sponsored by the Pi Theta Chapter of Sigma Theta Tau International and the Eleanor Mann School of Nursing. During her thesis defense Mary identified several directions to extend her research in the area of breastfeeding that she could pursue during future graduate work in nursing. Mary completed her honors work while also excelling in the demanding upper division clinical coursework in nursing. She is positioned to be a future leader in nursing practice and research.*